



Donald L. Stephens, Jr.
Application No. 09/866,570 Filed: May 25, 2001
Our Ref. No. 4630-59094
Art Unit: 1652
For: TRANSACYLASES OF THE PACLITAXEL
BIOSYNTHETIC PATHWAY
Inventor(s): Croteau et al.

FROM PEPTIDE FRAGMENT SEQUENCE 2								
NH2-	I	L	V	Y	Y	P	P	-COOH
5'	ATI	CTI	GTI	TAT	TAT	CCI	CC	3'
		T	C	C	C	C		
			A			A		
(Residues 1-7 of SEQ ID NO: 30) AT-FOR1 (SEQ ID NO: 34)								
NH2-	Y	Y	P	P	F	A	G	-COOH
5'	TAT	TAT	CCI	CCI	TTT	GCI	GG	3'
	C	C	C	C	C	C		
			A	A		A		
(Residues 4-10 of SEQ ID NO: 30) AT-FOR2 (SEQ ID NO: 35)								
FROM SEQUENCE HOMOLOGY CONSIDERATIONS								
NH2-	F	Y	P	F	A	G	R	-COOH
5'	TTC	TAT	CCI	TTC	GCI	GGI	AG	3'
	T	C		T	C	C		
					A	A		
(SEQ ID NO: 39) AT-FOR3 (SEQ ID NO: 36)								
NH2-	Y	Y	P	L	A	G	R	-COOH
5'	TAC	TAT	CCI	TTI	GCI	GGI	AG	3'
	T	C		C	C	C	C	
					A	A		
(SEQ ID NO: 40) AT-FOR4 (SEQ ID NO: 37)								
NH2-	D	F	G	W	G	K	P	-COOH
3'	CTA	AAA	CCI	ACC	CCI	TTT	GG	5'
	G	G	C		C	C		
			A		A			
(SEQ ID NO: 41) AT-REV1 (SEQ ID NO: 38)								

FIG. 4

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TAX1	(SEQ ID NO: 28)
TAX2	(SEQ ID NO: 26)
aab61522	(SEQ ID NO: 59)
aab61523	(SEQ ID NO: 62)
aab95283	(SEQ ID NO: 63)
aab97723	(SEQ ID NO: 64)	. . . . .
aac17079	(SEQ ID NO: 65)	M A V S V A S A E L P P P Q D G E T L S N V P Q T L S G E D C K K Q R I Q R P K S K N A E K C T
aac18062	(SEQ ID NO: 66)	. . . . .
aac27152	(SEQ ID NO: 67)	. . . . .
aac99311	(SEQ ID NO: 68)	. . . . .
aad12025	(SEQ ID NO: 69)	. . . . .
caa20531	(SEQ ID NO: 70)	. . . . .
caa64636	(SEQ ID NO: 71)	. . . . .
caaa94432	(SEQ ID NO: 72)	. . . . .
cab06427	(SEQ ID NO: 73)
cab10318	(SEQ ID NO: 74)
cab10319	(SEQ ID NO: 60)
cab40761	(SEQ ID NO: 61)

FIG. 6A

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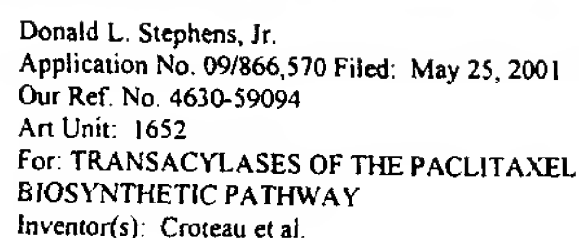


FIG. 6B

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Inventor(s): Croteau et al.

TAX1 (SEQ ID NO: 28)	MEKTDLHYNLI EKVMVGSP	EL	23
TAX2 (SEQ ID NO: 26)	MGRFNVDMI ERVIVAECLQS	EL	21
aab61522 (SEQ ID NO: 59)	MEKNVEILSR EIVKSS	ET	0
aab61523 (SEQ ID NO: 62)	MPSLEKSVTII SRNRVFFDQKST	LV	22
aab95283 (SEQ ID NO: 63)	MASCIQELHFTHLHIPYTTINQQFLVHSSSTANQS	EL	25
aab97723 (SEQ ID NO: 64)	NNPHHTTFFILSEN NQMGAEQARGFHYTTTRKQVITAAAL	EL	37
aac17079 (SEQ ID NO: 65)	MNVTTMHSKKLLKPSI	ET	147
aac18062 (SEQ ID NO: 66)	MESGKISVETETLSKTLIKPSSE	ET	20
aac27152 (SEQ ID NO: 67)	MESGKISVETETLSKTLIKPSSE	ET	34
aac99311 (SEQ ID NO: 68)	MAPITFRKSYTIVPAE	ET	27
aad12025 (SEQ ID NO: 69)	MANQRKPILP LLEKKPV ELVKPSKH	ET	20
caa20531 (SEQ ID NO: 70)	MDSKQSSSELVFTVRRQKPEL IAPAK	ET	29
caa64636 (SEQ ID NO: 71)	DFS FHYRKCQPEL IAPAN	ET	28
caa94432 (SEQ ID NO: 72)	MSIQIKQSTMVRRPAE	ET	21
cab06427 (SEQ ID NO: 73)	METMTMKVETISKEI IKPS	ET	19
cab10318 (SEQ ID NO: 74)	MEAKLEV TGKEVIKPS	ET	25
cab10319 (SEQ ID NO: 60)	MEAKLEV TGKEVIKPS	ET	22
cab40761 (SEQ ID NO: 61)	MPMLMATRIDIIQKLN VYP	RFQN	23

FIG. 6C

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TAX1 (SEQ ID NO: 28)	K T T L Q L S S I D N L P G V R G S I F N A L L I Y N A S P S P T M I S A D P	A K P I	66
TAX2 (SEQ ID NO: 26)	K N I L H L S P I D N K T . . . R G L T N I L S V N A S Q R V S . V S A D P	A K T I	60
aab61522 (SEQ ID NO: 59)	. . . . .	. . . . .	0
aab61523 (SEQ ID NO: 62)	K R I L N L S L L D I L S S P M Y T G A L L F Y A A D P Q N L L G F S T E E T	S L K L	65
aab95283 (SEQ ID NO: 63)	D L K L S V S D L P M L S C H Y I Q K G C L F T C P N L P L P A L	I S H L	62
aab97723 (SEQ ID NO: 64)	H H S L Y L S N L D I I G A R V F T P S V Y F Y P S T N N R E S F V	L K R L	76
aac17079 (SEQ ID NO: 65)	W . . L P L S N L D L L P P L N V H V C F C Y K K P L H F T N T V A	Y E T L	184
aac18062 (SEQ ID NO: 66)	L Q K L N L S L L D Q I Q I P F Y V G L I F H Y E T L S D N S D I T	L S K L	58
aac27152 (SEQ ID NO: 67)	R K S M F L S N V D Q I L N . . . F D V Q T V H F F R P N K E F P P E M V	S E K L	72
aac99311 (SEQ ID NO: 68)	L S R Y N L S Y N D Q N I Y Q T C V S V G F F Y E N P D G I E I S T I R E	Q L	66
aad12025 (SEQ ID NO: 69)	G R F P L A E W D Q V . . G T I T H I P T L Y F Y D K P S E S F Q G N V	V E I L	58
caa20531 (SEQ ID NO: 70)	E T L S L S T L D N D P F N E V M Y A T I Y V F K A N G K N L D D P	V S L L	67
caa64636 (SEQ ID NO: 71)	R E T K F L S D I D D Q E G L R . . . F Q I P V I Q F Y H K D S S M G R K D P	V K V I	68
caa94432 (SEQ ID NO: 72)	Y E F K Q L S D V D D Q Q S L R . . . L Q L P F V N I Y P H N P S L E G R D P	V K V I	61
cab06427 (SEQ ID NO: 73)	K S L W L S N I D M I L R T P Y S H T G A V L I Y K Q P D N N . E D N I H P S S M Y F D A N I L	67	
cab10318 (SEQ ID NO: 74)	L Q T L Q L S I Y D H I L P P V Y T V A F L F Y T K N D L I S Q E H T	S H K L	64
cab10319 (SEQ ID NO: 60)	R . . L Q L S I L D L Y C P G I Y V S T I F F Y D L I T E S S E V F	S E N L	58
cab40761 (SEQ ID NO: 61)	H D K K K L I T L S N L D R Q C P L L M Y S V F F Y K N T T T R D F D S V	F S N L	64

FIG. 6D

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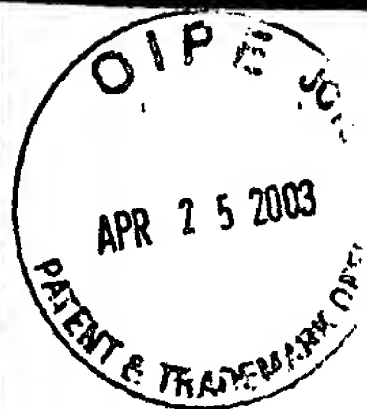
TAX1 (SEQ ID NO: 28) REALAKILVYYPFFAGRL·RETENGDLVECTGE·GAMFLMADNEZSV 114
TAX2 (SEQ ID NO: 26) REALSKVLVYYPFFAGRL·RNTENGDLVECTGE·GAVFVAMADNDZSV 108
aab61522 (SEQ ID NO: 59) ······KKSLSKTLPIFYELAGRII·GS·····FVECNDEGAVFIEARVDH·LZSE 3
aab61523 (SEQ ID NO: 62) KKSLSKTLPIFYELAGRII·GS·····FVECNDEGAVFIEARVDH·LZSE 108
aab95283 (SEQ ID NO: 63) KHSLSITLTHFFPLAGRLS·TSSSGHVFLTCNDAGADEVFAQAKSIHVSD 111
aab97723 (SEQ ID NO: 64) QDALSEVLVYPYPLSGL·REVENGGKLEVFGEQGVLMVSNSSMDLAD 125
aac17079 (SEQ ID NO: 65) KTALEAETLVSYAFAGELV·TNPTGEPEILCNNGRGVDFVEAGAD·VELRE 232
aac18062 (SEQ ID NO: 66) ESSLSSETLTLYHVAGRYN·GT·····DCVIECNDDQGGIGYVETAFED·VELHQ 103
aac27152 (SEQ ID NO: 67) RKALVKLMDAYEFLAGRLRVDPSSGRILDVDCN·GAGFVTASDYTL·EE 121
aac99311 (SEQ ID NO: 68) QNSLSKTLVSVYYPFAGKVV·KN·····DY·IHCNDDGIEFVEVRI·RCRMND 110
aad12025 (SEQ ID NO: 69) KTSLSRVLVHVFYPMAGRLRWLP·RGRFELN·GVEFIESEEGKLS 106
caa20531 (SEQ ID NO: 70) RKALSLELVHXYPLSGKLMRSESNGLQLVYLG·GVPFVATSTLDDSS 116
caa64636 (SEQ ID NO: 71) KKAIAETLVFYYPFAGRL·REGNGRKLMDVCTGE·GIMFVADADVTL·EE 116
caa94432 (SEQ ID NO: 72) KEAIGKALVFEYPLAGRL·REGPGRKLFEVCTGE·GILFIEADADVS·EE 109
cab06427 (SEQ ID NO: 73) IEALSKEALVFPFYPMAGRLK·IN·GDRYEIDCN·GALFVDESSHV·LE 114
cab10318 (SEQ ID NO: 74) KTSLSSETLTTKFYPLAGRLIT·GV·····TVDCCTDEGAI·FVDARVNNCP·LE 108
cab10319 (SEQ ID NO: 60) KLSLSSETLRSRFFYPLAGRIE·GL·····SISCNDEGAVFTEARTDL·LEPD 101
cab40761 (SEQ ID NO: 61) KLGLEETMSVWYPAAGRLGLDGGGCKLINIRCN·DGGGAVMVEAVATGVK·LE 114

FIG. 6E

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TAX1 (SEQ ID NO: 28)	LGD . FDDSNPSEQ . QLI FSLPLDTNF	KDLSLLVVQVYTRRTCE . GE	156
TAX2 (SEQ ID NO: 26)	LQD . FNEYDPSFQ . QLVFNLRDENVNI	EDLHLLTVQVYTRRTCE . GE	150
aab61522 (SEQ ID NO: 59)	ILEN . PNP . ELNKLHPFEHVS DVP	LTVQLTFEECE . GL	41
aab61523 (SEQ ID NO: 62)	FLKC . PVPE . SLELLIP	AVTWELLIQANFESCE . GL	149
aab95283 (SEQ ID NO: 63)	VIAGIDVPD . VVKEFFTYDR	AVQVTELN	153
aab97723 (SEQ ID NO: 64)	LGDLTVPNP . PAWLPIFRNPGEEAYKI	LEMEELLIQVYTRRTCE . GE	169
aac17079 (SEQ ID NO: 65)	LNLY . DPDE . SIAKLVPIKKHG	VIAIQVYTRRTCE . SI	266
aac18062 (SEQ ID NO: 66)	FLLG . EESN . NLDLLVGL	TETPEELAAIQLNMEKCE . GL	144
aac27152 (SEQ ID NO: 67)	LGD . LVYPNPAFAQLVTSQLQ . SLPKD	DQELFVFIQITSEKCE . GE	163
aac99311 (SEQ ID NO: 68)	ILKY . ELRS . YARDLVLPKRVTVGSED	TTA	150
aad12025 (SEQ ID NO: 69)	FKD . FS . PTPEFENLM . PQVNYKNPIE	TIELFLAQVYTRRTCE . GI	147
caa20531 (SEQ ID NO: 70)	LN	YIENLDDQVALRLVPEIEIDYESNVCYHFPALQVYTRRTCE . GE	160
caa64636 (SEQ ID NO: 71)	FGDELQPPFPCE . ELLYDVPPDSAGV	LNCEELLIQVYTRRTCE . GE	159
caa94432 (SEQ ID NO: 72)	FWDTLPYSLSSMQNNIIHNALNSDEV	LNSEELLIQVYTRRTCE . GE	153
cab06427 (SEQ ID NO: 73)	FGD . ER . PNDELHRVMVPTCDYSKGIS	SEELLMVQLTTRTRCE . GV	156
cab10318 (SEQ ID NO: 74)	FLKC . PDEF . ALQQLLPDLDVVDNPFYVA	AATWELLLVKATYTRTGCE . GM	152
cab10319 (SEQ ID NO: 60)	FLRN . LNTD . SLSGFLPTLAAGE	PAAWELLSVKYTRTGCE . GV	143
cab40761 (SEQ ID NO: 61)	LGDLTQYNEEYENLVYKPSLDGDFSV	MEELVVAQVYTRRTCE . GE	156

FIG. 6F

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TAX1 (SEQ ID NO: 28)	VVGVSVFHHGVCDDGRGAAQELKGLAEEMAB	GEVKLS	LEEW	195																														
TAX2 (SEQ ID NO: 26)	VVGVTRFHHSVSDGKIGQLLKGMGEMAB	GEFKPS	LEEW	189																														
aab61522 (SEQ ID NO: 59)	ALGIGLSHKLCLCDALSGLIIVNNAFAAGQTD	DE	IITSEF	80																														
aab61523 (SEQ ID NO: 62)	VITICVSHKITTDAATSLAMEIRGWAEESBG	L	GITLSEF	187																														
aab95283 (SEQ ID NO: 63)	FICSVNHAVTDGTSLSLWNEINTFAEVS	BGAKNVT	RQPDFTRESVL	198																														
aab97723 (SEQ ID NO: 64)	SLGIRLCHCICDGFAGMQLLGSWAAT	AKTKLIAD	PEE	209																														
aac17079 (SEQ ID NO: 65)	VVGCTFDHVRVADAYSMNMELLSWA	EIS	SDVPI	305																														
aac18062 (SEQ ID NO: 66)	VIGAQFNHIIIGDMETMSTELMNSWA	KACR	VGIKE	183																														
aac27152 (SEQ ID NO: 67)	AMGISTNHITTFDGLSFKTLENL	LLH	EKPLS	201																														
aac99311 (SEQ ID NO: 68)	AVAFGISHKVADGCTIASFMKDW	AS	CYLSS	191																														
aad12025 (SEQ ID NO: 69)	SLSVNVSHAIVDGQSAHLISEWGR	LAB	GEPL	185																														
caa20531 (SEQ ID NO: 70)	TIGTALTHAVCDGPGYGVQIIHALTE	LA	AGKTEPS	199																														
caa64636 (SEQ ID NO: 71)	IFALRLNHTMTSDAPGLVQFM	TAVGEMAB	GGSA	PS	198																													
caa94432 (SEQ ID NO: 72)	IFGLCFNHHTMADEFGIVQFM	KAT	AEI	AB	192																													
cab06427 (SEQ ID NO: 73)	SIGFAQHSHHVCDGMAHFEFN	NS	W	RI	AB	194																												
cab10318 (SEQ ID NO: 74)	AIGICITHKIAAASISTEIR	S	W	AT	AB	193																												
cab10319 (SEQ ID NO: 60)	AVSVSVSHKICDIA	SLVT	W	TK	AK	SN	STIE	181																										
cab40761 (SEQ ID NO: 61)	SIGIGTS	SS	LF	D	G	IS	AY	EE	I	H	AW	AS	NS	SH	I	HN	KS	NS	K	I	T	N	K	K	E	D	V	V	I	K	E	V	H	201

FIG. 6G

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TAX1 (SEQ ID NO: 28)	NRELVKLD...	DP...	KYLQFFHF...	EFLRAP...	SIV...	EKIVQ	227
TAX2 (SEQ ID NO: 26)	NREMVKPE...	DI...	MYLQFFHF...	DFIHPP...	LNL...	EKSIQ	221
aab61522 (SEQ ID NO: 59)	DLAKMFPCCDIEN...		LNMATGITKE...		NIVT...		107
aab61523 (SEQ ID NO: 62)	TASEVFPKPLDEL...		PSKPMDRKKEVEEMS...		CVT...		218
aab95283 (SEQ ID NO: 63)	ISPAVLKVPQGGPKVTFDENAPL...		RERIFSFSRESIQELKAVVNKK...				243
aab97723 (SEQ ID NO: 64)	DETFKPR...	NP...	PMVKYPHH...	EYLPIEERSNLTNLSLWD...		TKPLQ	249
aac17079 (SEQ ID NO: 65)	RSSLNPRRPLVMDPSIDQIYMPVTS...		LPFPPEETNPENLLAS...				347
aac18062 (SEQ ID NO: 66)	CLAPLMPSAKVLN...		IPPPPSFEG...		VKFVS...		210
aac27152 (SEQ ID NO: 67)	DTLLKARDPPS...		VAEPHH...	EL...	VKFQDCETTTFEATSEHLDF		242
aac99311 (SEQ ID NO: 68)	VSDSIFPRQDNII...		CEQFPFSK...		NCVE...		216
aad12025 (SEQ ID NO: 69)	DRKILWAGEPLPPFVSPPKFDHKK...		EFDQPPFLIGETDNVVEERKKKTIV...				232
caa20531 (SEQ ID NO: 70)	QERLVGKIDNKP...		GKVPGSII...	D...	GFLATSAYLPT...	TDVVT	237
caa64636 (SEQ ID NO: 71)	CRELLNAR...	NP...	PQVTCTHH...	EYDEVDRDTKGTIIPL...		DDMVH	236
caa94432 (SEQ ID NO: 72)	QRALLTAR...	DP...	PRITFRHY...	EYDQVDMKSGLIPIV...		NSKID	230
cab06427 (SEQ ID NO: 73)	DRYLHLRPRNPPQI...		KYSHS...	QFE...	PFPVPSLPNELLDGKTNKSQ...		235
cab10318 (SEQ ID NO: 74)	AGANFYPPANEAF...			KLPADQAGKRS...	SIT...		221
cab10319 (SEQ ID NO: 60)	AETTIYPPPPSHM...			YEQFPSTDSDSNITSKYVL...			213
cab40761 (SEQ ID NO: 61)	DRRNLLVNRDAVRETNAAAI	CHLYQLIKQAMMTYQEQNRRNLELPDSGFVI					256

FIG. 6H

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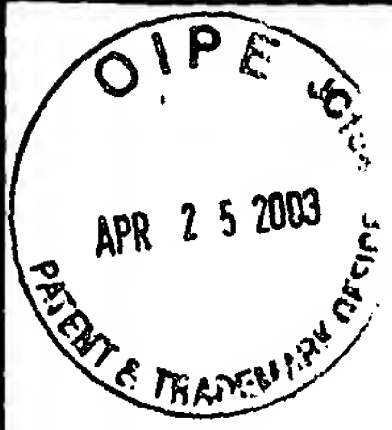
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TAX1 (SEQ ID NO: 28)	TYFIIDFEETINYYIKQSV.MEEC	KEEF	251
TAX2 (SEQ ID NO: 26)	ASMVISFEERINYYIKRCM.MEEC	KEEF	245
aab61522 (SEQ ID NO: 59)	RRFVFLRSSVESLRERESGNK	KIR.AT	133
aab61523 (SEQ ID NO: 62)	KRFVFDASKIKKIRAK.ASRN	LVKNPT	244
aab95283 (SEQ ID NO: 63)	KWLTVDNGEIDGVELLGKQSNCKLNGKENGILTEMLESFGRNDVSKPV		293
aab97723 (SEQ ID NO: 64)	KCYRISKKEFFQCRVKKSI.A.QGED	PTL	273
aac17079 (SEQ ID NO: 65)	RIYYIKANALQELQTLASSKN	GKRT	373
aac18062 (SEQ ID NO: 66)	KRFEVFENENAIITRIRKKEATEEDGGDD	DQKKKRRPS	244
aac27152 (SEQ ID NO: 67)	KIFKLSSEQIKKKERA..SET	SNG	265
aac99311 (SEQ ID NO: 68)	KTFIFPPEAIEKKKSKAVEFG	IEKPT	242
aad12025 (SEQ ID NO: 69)	VMLPLSTSQLQKLRSKANGSKH	SDP	257
caa20531 (SEQ ID NO: 70)	ETINIRAGDIKKRKDSM.MKEC	EYL	261
caa64636 (SEQ ID NO: 71)	KSEFFFGPSEVSAIRRFV.PHHL	RK.	259
caa94432 (SEQ ID NO: 72)	QLFFFSQLQISTLRQTL.PAHL	HD.	253
cab06427 (SEQ ID NO: 73)	TLFILLSREQINTLKQKLDLSNN	TTR	260
cab10318 (SEQ ID NO: 74)	KRFEVFEASKVEDLRTKAASEE	TVDQPT	248
cab10319 (SEQ ID NO: 60)	KRFEVFEPSKIAELKKHKAASES	VPVPT	239
cab40761 (SEQ ID NO: 61)	KTFEELNGDAIESMKKKSLEG		276

FIG. 6I

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TAX1 (SEQ ID NO: 28)	. CS . . . SFEVASAMT	W	I	A	R	T	R	A	F	Q	I	P	E	S	E	Y	..	V	K	I	L	E	G	M	D	M	S	N	S	F	N	291										
TAX2 (SEQ ID NO: 26)	. FS . . . AFEVVV	A	L	I	W	L	A	R	T	K	S	F	R	I	P	P	N	E	Y	..	V	K	I	I	F	P	I	D	M	S	N	S	F	D	285							
aab61522 (SEQ ID NO: 59)	RVE . . . VLSVFI	W	S	R	E	..	M	A	S	T	N	H	D	D	K	T	G	K	I	Y	T	..	L	I	H	P	Y	N	L	S	R	Q	A	D	173							
aab61523 (SEQ ID NO: 62)	RVE . . . AVT	A	L	F	W	R	C	V	..	T	K	V	S	R	L	S	S	L	T	P	R	T	S	V	..	L	Q	I	L	Y	N	L	S	G	K	V	D	284				
aab95283 (SEQ ID NO: 63)	AVEISSEFQSLC	A	L	L	W	R	A	I	T	R	A	K	L	P	S	S	K	T	T	..	F	R	M	A	Y	N	C	B	H	S	L	S			336							
aab97723 (SEQ ID NO: 64)	VCS . . . TFDAMA	A	H	I	W	R	S	W	K	A	L	D	V	K	P	L	D	Y	N	..	L	R	L	T	F	S	Y	N	V	B	T	S	L	E	315							
aac17079 (SEQ ID NO: 65)	KLE . . . SFS	A	F	L	W	K	L	V	A	E	H	A	A	K	D	P	V	P	I	K	T	S	K	..	L	G	I	V	V	D	G	B	R	S	L	M	413					
aac18062 (SEQ ID NO: 66)	RVD . . . LVT	A	F	L	S	K	S	L	I	E	M	D	C	A	K	K	E	Q	T	K	S	R	P	S	L	..	M	V	H	M	M	N	L	S	K	B	T	K	286			
aac27152 (SEQ ID NO: 67)	NVRVTGFNVV	T	A	L	V	W	R	C	K	A	L	S	V	A	A	E	E	G	E	E	T	..	N	L	E	R	E	S	T	I	L	Y	A	V	D	I	S	G	B	L	313	
aac99311 (SEQ ID NO: 68)	RVE . . . VLT	A	F	L	S	R	C	A	T	V	A	G	K	S	A	A	K	N	N	C	G	Q	S	L	P	F	P	V	L	Q	A	I	N	L	S	P	I	L	E	287		
aad12025 (SEQ ID NO: 69)	AKGFTTRYET	V	T	G	H	V	W	R	C	A	C	K	A	R	G	H	S	P	E	Q	P	T	..	A	L	..	G	I	C	I	D	T	S	S	B	M	299					
caa20531 (SEQ ID NO: 70)	KESFTTYEV	L	S	S	Y	I	W	K	L	R	S	R	A	L	K	L	N	P	D	G	I	T	..	V	..	L	G	V	A	Y	G	I	S	H	V	L	D	304				
caa64636 (SEQ ID NO: 71)	. CS . . . TFE	L	L	T	A	V	L	W	R	C	R	T	M	S	L	K	P	D	P	E	E	..	V	R	A	L	C	I	Y	N	A	B	S	S	F	N	299					
caa94432 (SEQ ID NO: 72)	. CP . . . SFE	V	L	T	A	Y	V	W	R	L	R	T	I	A	L	Q	F	K	P	E	E	..	V	R	E	L	C	V	M	N	L	S	K	I	D	293						
cab06427 (SEQ ID NO: 73)	. . . LST	Y	E	V	V	A	A	H	V	W	R	S	V	S	K	A	R	G	L	S	D	H	E	E	I	..	K	L	..	I	M	P	V	D	G	B	S	B	I	N	300	
cab10318 (SEQ ID NO: 74)	RVE . . . SVT	A	L	I	W	K	C	E	..	V	A	S	S	K	..	T	T	C	D	H	K	V	..	L	V	Q	L	A	N	L	R	S	K	I	P	286						
cab10319 (SEQ ID NO: 60)	RVE . . . AIM	S	L	I	W	R	C	A	..	R	N	S	S	R	S	N	L	I	P	R	Q	A	V	..	M	W	Q	A	M	D	I	R	L	R	I	P	279					
cab40761 (SEQ ID NO: 61)	. FMC	S	S	F	E	F	L	A	A	H	L	W	K	A	R	T	R	A	L	G	L	R	R	D	A	..	M	V	C	L	Q	F	A	V	D	I	R	K	R	T	E	318

FIG. 6J

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Donald L. Stephens, Jr.
Application No. 09/866,570 Filed: May 25, 2001
Our Ref. No. 4630-59094
Art Unit: 1652
For: TRANSACYLASES OF THE PACLITAXEL
BIOSYNTHETIC PATHWAY
Inventor(s): Croteau et al.

TAX1 (SEQ ID NO: 28) P. P. ~~LP~~SGY~~YGN~~SIGTACAVDNVQD... ~~LL~~SG. ~~SL~~LRAIMIIK~~KS~~VSL... 334
TAX2 (SEQ ID NO: 26) S. P. ~~LP~~KGY~~YGN~~AIGNACAMDNVQD... ~~LL~~NG. ~~SL~~LYALMLIK~~KS~~FAL... 328
aab61522 (SEQ ID NO: 59) P. D. ~~LP~~DNM~~FGN~~IMRFSVTPMIMI... ~~EN~~DEEKASLVQDMREERKI... 217
aab61523 (SEQ ID NO: 62) S. . ~~LC~~CENTI~~GN~~.MLSIMI..LKNEE...AAIERIQDVVDEIRRA~~KE~~EIF... 324
aab95283 (SEQ ID NO: 63) P. K. ~~LN~~PEY~~FGN~~AI...~~Q~~SVPTFATAAEVLSRDLKWC... 368
aab97723 (SEQ ID NO: 64) T. L. ~~LR~~KKG~~FGN~~VVCLACAMSSVES...~~LI~~ND. ~~SL~~SKTTRLVQDARLRV... 359
aac17079 (SEQ ID NO: 65) E. K. ~~EN~~NTY~~FGN~~VLSVPFGGQRIDDLISKPLSWVTEEVHRRFL~~K~~... 455
aac18062 (SEQ ID NO: 66) L. A. ~~LE~~ENDVSV~~GN~~FF...IVVNA...ESKITVAPKITTDLTSLGSA... 323
aac27152 (SEQ ID NO: 67) N. P. ~~LP~~PSY~~FGN~~AVLTAYAKEKCKA...~~LL~~EE. ~~PF~~GRIVEMVGE~~GS~~KRI... 357
aac99311 (SEQ ID NO: 68) . . ~~LP~~QNSV~~GN~~LVLSIYFSRTIKENDY~~LN~~EKEYTKLVINE~~LR~~KE~~Q~~KI... 331
aad12025 (SEQ ID NO: 69) E. P. ~~LP~~RGY~~FGN~~ATLDVVAASTSGE...~~LI~~SN. ~~EL~~GFAASLIS~~KA~~IKNV... 343
caa20531 (SEQ ID NO: 70) P. P. ~~LP~~KGY~~YGN~~AYIDVYVELTVRE...~~LE~~ES. ~~SI~~SNIANRVK~~KA~~KKTAYEK 350
caa64636 (SEQ ID NO: 71) P. P. ~~LP~~TKGY~~YGN~~AFAPVAVTTAAK...~~LS~~KN. ~~PL~~GYALELVK~~KT~~SSDV... 342
caa94432 (SEQ ID NO: 72) I. P. ~~LP~~...GY~~YGN~~AVVVPVAVITTAAG...~~LC~~GN. ~~PL~~GYAVDDLIR~~KA~~AKA... 334
cab06427 (SEQ ID NO: 73) N. P. ~~LP~~KGY~~YGN~~VVFLAVCTATVGD...~~LS~~CN. ~~PL~~TTDTAGKVQEALKGL... 344
cab10318 (SEQ ID NO: 74) S. L. ~~LQ~~ESSI~~GN~~LMFSSVV...LSIGR...GGEV~~KI~~EEAVRD~~LR~~KE~~KE~~EEL... 328
cab10319 (SEQ ID NO: 60) S. S. VAPKDVIGNLQSGFS...LKKDA...ESEFEIPEIVATFR~~KN~~KEERV... 321
cab40761 (SEQ ID NO: 61) T. P. ~~LP~~EGG~~FGN~~AYVVLASVASTARE...~~LL~~EEELTLESIVN~~KI~~REAK~~KS~~I... 362

FIG. 6K

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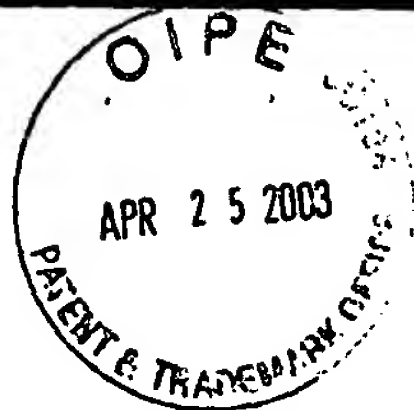


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Inventor(s): Croteau et al.

TAX1 (SEQ ID NO: 28)	..NDNF..K	RAVVKPSEL	DVN.....	MNHEN	VVAFA	DSRL	367
TAX2 (SEQ ID NO: 26)	..NENF..K	RILTKPST	L DAN.....	MKHEN	VVGCGD	WRNL	361
aab61522 (SEQ ID NO: 59)	..DAVYV	KKLQEDN	R GHL.....	EFLNK	QASGE	VNGETSLCKF	259
aab61523 (SEQ ID NO: 62)	..S...L	NCKEMSK	SSSRIFEL	LEEIG..	KVYGRG..	NEMDLWMSN	366
aab95283 (SEQ ID NO: 63)	..ADQLN	QVAAHQ	DGRIRSV	VADWE	ANPRCF	PLGNADGAS	416
aab97723 (SEQ ID NO: 64)	..SEDYLR	SMVDYV	DVVRPKR.....	LEFGK	LITITQ	WTRF	393
aac17079 (SEQ ID NO: 65)	..SVTKE	HFLNLI	DWVETCR	PPTAV	SRIYS	VGSDDGPA	500
aac18062 (SEQ ID NO: 66)	..CGEII	SEVAKV	DDAEVSS	MVLSV	REFY	YEWGKGN	371
aac27152 (SEQ ID NO: 67)	..TDEYAR	SAIDWGE	LYKG.....	FPHGE	VLVS	SWKL	388
aac99311 (SEQ ID NO: 68)	..KNLSR	EKLT	YVAQMEE	FVKSL	KEFD	ISNFL	374
aad12025 (SEQ ID NO: 69)	..TNEYV	MIGIEY	LKNQKDL	KKFQD	LHALG	STEGPFY	391
caa20531 (SEQ ID NO: 70)	GYIEEL	KNTERL	MRDDSM	FE.....	GVSDG	LFFLT	386
caa64636 (SEQ ID NO: 71)	..TEEYMK	SVADLM	V LKGRPH.....	FTVV	RTFL	VSDVTRG	376
caa94432 (SEQ ID NO: 72)	..TMEYIK	STVDLM	V IKGRPY.....	FTVV	GSMMSD	LTRI	368
cab06427 (SEQ ID NO: 73)	..DDDYLR	SAIDHT	ESKPG.....	PVPY	MGSPE	KTLTY..	386
cab10318 (SEQ ID NO: 74)	..GTVIL	DEGGSS	SSSMIG	SKLAN	LMLTN	YSRSL	376
cab10319 (SEQ ID NO: 60)	..NEMIK	ESLQGN	TIGQS	LLSL	MAETV	SES.....	363
cab40761 (SEQ ID NO: 61)	..DQGYIN	SYMEAL	GGSNDG	NLPP.....	LKEL	TLISD	397

FIG. 6L

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Application No. 09/866,570 Filed: May 25, 2001
Our Ref. No. 4630-59094
Art Unit: 1652
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BIOSYNTHETIC PATHWAY
Inventor(s): Croteau et al.

TAX1 (SEQ ID NO: 28) G . F D E V D E G H G N A Y S V S P V Q Q Q S . . A L A M Q N Y F L F L K P S K N K P D G I K I L M 414
TAX2 (SEQ ID NO: 26) G . F Y E A D E G H G N A Y N V S P M Q Q Q R E H E L A M Q N Y F L F L R S A K N M I D G I K I L M 410
aab61522 (SEQ ID NO: 59) P V Y . E A D E G H G K E L W V A S A R M S . Y K N L . . V A F I D T K E G D G I E A W I 300
aab61523 (SEQ ID NO: 62) G L Y . D A D E G H G K E Y W V T G R G T S H F K N L . . M L L I D T K D G E G I E A W I 408
aab95283 (SEQ ID NO: 63) P M Y . D N D E G H G R P Y A V R S G R S N K F D G K I S A . F P G R E G N G T V D L E V 459
aab97723 (SEQ ID NO: 64) E M Y E T A D E G H G K E Y Y A G P I D L R P T P Q V C V L L P Q G G V E S G N D Q S M V V C L 441
aac17079 (SEQ ID NO: 65) P V N . Q V D E G H G S P Y F G S Y H F P W G G S A G Y V M P M P S S V D D R D W M V Y L 544
aac18062 (SEQ ID NO: 66) P L Y . E V D E G H G I E S L V D T T A V P F G L I V L M D E A P A G D G I A V R A 412
aac27152 (SEQ ID NO: 67) G . F A E V E Y P H G K K E K Y S C P V V Y H R K K D I V L L F P D I D G D S K G V Y V L A 431
aac99311 (SEQ ID NO: 68) P F Y . D V D E G H G K K E I W V . C L F Q P Y I K N C V V M M D Y P F G D D Y G I E A I V 417
aad12025 (SEQ ID NO: 69) P . M Y G L D E G H G K E F Y T G P G T H D F D G D S L I L P D Q N E D G . S V I L A T 433
caa20531 (SEQ ID NO: 70) G W F G S M D E G H G N E P V N L R P L . T Q R E S T V H V G M I L K P S K S D P S M E G G V K V I M 435
caa64636 (SEQ ID NO: 71) G . F G E V D E G H G K A Y Y G G P A K G G V A I P G V A S F Y I P F K . N K K G E N G I V V P I 424
caa94432 (SEQ ID NO: 72) G . V E N V D E G H G K A I F G G P T T T G A R I T R G L V S F C V P F M . N R N G E K G T A L S L 416
cab06427 (SEQ ID NO: 73) P . Y Q A M D E G H G S P T F F G I S N I F Y D G Q C F L I P S R D G D G . S M T L A I 428
cab10318 (SEQ ID NO: 74) P L Y . E A S H G H D S P Y W V V G N V S P V L G N L . . A M L I D S K D G G I E A F V 418
cab10319 (SEQ ID NO: 60) P F Y . E V D E G S S P Y W V V G Y A S H T I Y D N M V G V V L I D S K E G D G V E A W I 407
cab40761 (SEQ ID NO: 61) P . F H N V G E G N G G E P A D Y M A P L C P P V P Q V A Y F M K N P K D A K G V L V R I 441

FIG. 6M

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Art Unit: 1652
For: TRANSACYLASES OF THE PACLITAXEL
BIOSYNTHETIC PATHWAY
Inventor(s): Croteau et al.

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TAX1 (SEQ ID NO: 28) FLPLSKMKSSFKIEMEAMMK. KYVAKV.....
TAX2 (SEQ ID NO: 26) FMPASMVVKPKIEMEVTIN. KYVAKICNSKL.....
aab61522 (SEQ ID NO: 59) NLDQNDMSRFEADEELRLRYVSSNPSPVSVS.....
aab61523 (SEQ ID NO: 62) TLTTEEQMSLEECQDEELLESASLNPVLI.....
aab95283 (SEQ ID NO: 63) VLSPETMAGIESDGEFMRVYTNK.....
aab97723 (SEQ ID NO: 64) CLPPTAVHTFTRLLSLNDHK.....
aac17079 (SEQ ID NO: 65) HLTGQQLRFIEEEASHVLPIDNDYDKI.....
aac18062 (SEQ ID NO: 66) CLSEHDMIQEQHHQLLSYVS.....
aac27152 (SEQ ID NO: 67) ALPSKEMSKFQHWFEETLC.....
aac99311 (SEQ ID NO: 68) SFEQEKMSAEKNEQLLQFVSN.....
aad12025 (SEQ ID NO: 69) CLQVAHMEAEKKHFEYEDI.....
caa20531 (SEQ ID NO: 70) KLP RDAMVEFKRREMATMKKLYFGDTN.....
caa64636 (SEQ ID NO: 71) CLPGGFAMETFEVKELDGMLKVDAPL.. VNSNYAIIIRPAL..
caa94432 (SEQ ID NO: 72) CLPFPAMERFRANVHASLQVKQVVDASHMQTIQSASK
cab06427 (SEQ ID NO: 73) NLFSSSHLSRRFKKYYFDF.....
cab10318 (SEQ ID NO: 74) TLPEEENMSSSEQNPELLAFATMNPVSVL.....
cab10319 (SEQ ID NO: 60) SLPEEEDMSVFEVDDQELLAYAVLNPVVA.....
cab40761 (SEQ ID NO: 61) GLDPRDVNGFSNHFELDC.....

FIG. 6N

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